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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,626	04/11/2001	R. G.F. Visser	294-52 CIP	1804
23869	7590	06/25/2004	EXAMINER	
HOFFMANN & BARON, LLP 6900 JERICHO TURNPIKE SYOSSET, NY 11791			MCINTOSH III, TRAVISS C	
			ART UNIT	PAPER NUMBER
			1623	

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,626

Applicant(s)

VISSER ET AL.

Examiner

Traviss C McIntosh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

The Amendment filed March 25, 2004 has been received, entered into the record, and carefully considered. The following information provided in the amendment affects the instant application by:

Claims 16, 19, and 20 have been amended.

Claims 22-27 have been added.

Remarks drawn to rejections of Office Action mailed March 26, 2003 include:

112 2nd paragraph rejections: which have been overcome by applicant's amendments and have been withdrawn.

103(a) rejection: which has been maintained for reasons of record.

An action on the merits of claims 16-27 is contained herein below. The text of those sections of Title 35, US Code which are not included in this action can be found in a prior Office action.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 25, 2004 has been entered.

Priority

Acknowledgement is made that the instant application is a CIP of application 09/180,481, now patent 6,551,827. However, it is noted that the parent case and those from which the parent case depended from, are silent to the various methods of extraction and percentages of amylopectin/amylose in the starch, and thus, the claims of the instant application will receive a filing date of April 11, 2001. Applicants state that support for the various percentages of amylopectin in the starch are found, for example, in column 3, lines 1-2 which states "another embodiment of the invention is the manipulation of starch in the cassava tubers", which does not support the specific percentages as set forth in the instant application's claims, such as, "at least 95% amylopectin". Therefore, the claims of the instant application only receive a priority date of 4/11/01.

Claim Objections

Applicant is advised that should claim 19 be found allowable, claim 24 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Claims 19 and 24 are both product by process claims wherein the process of making has no patentable import on the product as claimed. Both of claims 19 and 24 are drawn to a starch having an amylopectin content of at least 95%.

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Applicant is advised that should claim 21 be found allowable, claim 25 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Claims 19 and 24 are both product by process claims wherein the process of making has no patentable import on the product as claimed. Both of claims 21 and 25 limit the starches of claims 19 and 24 to a starch having an amylopectin content of at least 98%.

Claim Rejections - 35 USC § 112

Claims 22-23 and 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “**high** amylopectin content” in claims 22 and 26 is a relative term which renders the claims indefinite. The term “**high** amylopectin content” is not defined by the claim and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. Defining that which applicant intends by a “**high** amylopectin content” numerically would obviate the instant rejection.

All claims which depend from an indefinite claim are also indefinite. *Ex parte Cordova*, 10 U.S.P.Q. 2d 1949, 1952 (P.T.O. Bd. App. 1989).

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19, 21, 24, and 25 rejected under 35 U.S.C. 102(b) as being anticipated by Shieh et al. (WO 93/10255), art of record from Office Action mailed 8/27/2002.

Claims 19 and 24 are drawn to starches comprising at least 95% amylopectin. Claims 21 and 24 limit the amylopectin to at least 98%.

Shieh et al. disclose a starch comprising at least about 90%, and more preferably 99% amylopectin (page 2, lines 18-23, and example 1 on page 9). Even though applicant claims a product by process, i.e., “a starch obtainable by the method comprising...”, it is still anticipated by the prior art of Shieh et al. Applicants are reminded that product-by-process claims are generally characterized by the Patent Office as a product claim wherein the process limitations cannot impart patentability to a product that is not patentably distinguished over the prior art. See *In re Thorpe*, 227 USPQ 964, 966 (Fed Cir. 1985); *In re Dike*, (CCPA 1968) 394 F.2d 584, 157 USPQ 581; *Tri-Wall Containers, Inc. v. United States et al.*, (Ct. Cls. 1969) 408 F.2d 748, 161 USPQ 116; *In re Brown et al.*, (CCPA 1972) 4150 F.2d 531, 173 USPQ 685.

It is noted that applicant's response filed 1/6/2003 addressed the Shieh et al. reference wherein applicants added “cassava starch” to the claims to overcome the rejection. However, it is noted that the source of the agent in the product is not patentable absent of a showing of criticality. That is, it is unclear how the starch of Shieh et al. which comprises 95% amylopectin

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would differ from the starch of the instant application which comprises 95% amylopectin, regardless of where the starch is obtained, as starch is known to comprise amylose and amylopectin in varying percentages. Applicants must show a clear and distinguishable measure of the product as claimed with the product of the prior art.

Claim Rejections - 35 USC § 103

The rejection of claims 16-18 under 35 U.S.C. 103(a) as being unpatentable over Verberne et al. (US Patent 3,890,888) in view of Mitchell et al. (US Patent 4,285,735) and further in view of Tallberg et al. (US Patent 5,824,798) is maintained for reasons of record. Amended claim 20 and newly added claims 26 and 27 are rejected over the same references.

Claims 16-18 of the instant invention are drawn to a method of isolating starch from a tuber plant comprising: providing a cassava tuber with an amylopectin content of at least 95%, washing the tuber followed by grating then milling, separating the starch from fibers and juice in a separator, sieving the starch, washing the starch (in a hydrocyclone), and drying the starch (in a vacuum filter followed by a drying tower). Claim 20 provides that the starch has an amylopectin content of at least 98%. Claim 26 is drawn to a method of obtaining a starch with a high amylopectin content comprising providing a cassava tuber with an amylopectin content of at least 95% and the isolating the starch. Claim 27 provides that the starch of claim 26 has at least 98% amylopectin.

Verberne et al. teaches of a method of recovering starch from root crops, such as cassava tubers and potatoes (column 1, lines 5-10) wherein the grating normally takes place at least twice (column 1, lines 27-28). The grated substance is then separated by means of hydrocyclones into

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juice mixed with fibers on one hand, and starch on the other. The starch fraction then undergoes filtration (sieving) and finally is purified by washing in a stream of fresh water in a second hydrocyclone (column 2, lines 51-62). What is not taught by Verberne et al. is to wash the tuber initially, to use a milling device, or to dry the product twice, however the Mitchell et al. patent addresses the use of a milling device and the Tallberg et al. patent addresses drying techniques for polysaccharide polymers isolated from tubers.

Mitchell et al. teach of a process for isolating a plant starch from the dahlia tuber (abstract). Analogous to starch, inulin is chiefly a fructose polymer based polysaccharide starch (column 1, lines 36-38). The process as taught by Mitchell et al. involves the isolation of a polysaccharide component by washing and scrubbing a tuber and grinding in any conventional hammer mill or grinder. The slurry produced is then filtered through a filter cloth to remove fibrous insolubles (column 2, lines 31-34 and column 3, lines 34-40) and the products are further derivatized as dictated by the patent.

Tallberg et al. teach of a process for isolating amylopectin-type starch from a tuber (column 1, lines 10-11). The process as taught by Tallberg et al. comprises, grating a potato, thereby releasing the starch from the cell wall, separating the fibers from the starch in centrifugal screens, then separating the starch from the juice in a hydrocyclone followed by a band-type vacuum filter. The product is then dried in two steps, first by pre-drying on a vacuum filter and subsequently by final drying in a hot air current (column 9, lines 21-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the washing and milling steps of Mitchell et al. as the precursor steps in Verberne et al.'s starch isolation procedure because Verberne et al. teach to grate the tuber at

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least twice. One would be motivated to incorporate a milling technique in place of a grating step as it is known in the art that multiple gratings break the cell walls down to a size so small that the resulting fine fiber is not easily separated in the hydrocyclone or in sieving. One would be motivated to wash the tuber before use because one of ordinary skill in the art would recognize that there could be chemicals on the tuber if purchased from a supplier, or if a fresh tuber was picked from the earth, one would want to wash off any soil and residue from the tuber's outer surface to eliminate as many impurities as possible during starch isolation from a tuber. Washing a tuber before use and incorporating a step that would allow for the cells to maintain a more desirable size would be obvious to one of ordinary skill in this art.

It would have been obvious of one of ordinary skill in the art at the time the invention was made to incorporate the drying steps of Tallberg et al. into the process as taught by Verberne et al. in view of Mitchell et al. as noted above as these are just variations of standard drying techniques known in the industry. One would be motivated to incorporate these drying steps into the prior art process because these steps would allow for a crystallized product that could then be diluted to various levels based on the needs of the application. It is noted that the amounts of amylopectin and amylose in the starch as well as the source of the tuber are not seen to be critical in the methods of starch extraction, as the process steps of extracting the starch would be correlative, especially since Verberne et al. teaches that starch can be extracted from root crops, such as cassava tubers and potatoes (column 1, lines 5-10), with the same method. It is noted that in determining obviousness, all of the evidence must be considered on the subject matter as a whole from the viewpoint of one skilled in the art, and the use of a novel or unobvious starting product or final product, does not render an obvious, predictable process patentable. The process

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is deemed obvious to one of ordinary skill in the art since it involves predictable and expected process steps such as “washing, grating, milling, separating, sieving, washing, and drying” of claim 16 and the process step of “isolating” in claim 26.

Applicant's arguments filed August 5, 2003 have been fully considered but they are not persuasive. Applicants argue that none of the references teach the step of “providing a cassava tuber wherein the tuber comprises starch that has an amylopectin content of at least 95 wt% based on the dry substance weight of the starch” in their methods. However, as set forth supra, one of ordinary skill in the art would expect that the starch extraction methods as set forth by the prior art references would be effective when practiced on various starch containing materials, including cassava tubers, as set forth by Verberne et al.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Traviss C McIntosh whose telephone number is 571-272-0657. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Traviss C. McIntosh III
June 21, 2004



James O. Wilson
Supervisory Patent Examiner
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